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# THE HIGH SCHOOL JOURNAL

Volume V

CHAPEL HILL, N. C., APRIL, 1922

Number 4

## NOW AS TO STANDARDS

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**B**UILDERS OF SCHOOLHOUSES should always be on the watch for objective standards by which to judge whether or not they are securing the best building possible. The makers of standards are rapidly working away at the problem to devise such standards. We already have the Strayer Engelhardt Score Cards, and a few others for both city and rural schoolhouses. Yet those who have used these score cards sense the inadequacy and incompleteness of such measuring devices. The practical schoolman will probably be interested in the point of view set forth in the accompanying discussions of building standards as a means of helping him to think clearly about the essential features he would have built into his new buildings.

The superintendent of schools at Janesville, Wisconsin, back in 1919 prepared what he called a set of "educational specifications" for school buildings in his city. His method in the discussion of Janesville's building program is the sort of thing a schoolman ought to have in mind when planning a building program; in general, the suggestion is, to have educational as well as architectural standards in mind when planning buildings. Among many other interesting things he says:

"Janesville is a manufacturing city, located in a rich agricultural region, and while the attendance from the rural sections will be increased somewhat by the attractiveness of better school opportunities, the greater increase by far will come from the houses of the people attracted to the city by reason of the very large increase in the manufactures.

"Officers of the General Motors Corporation have stated that due to the advent of their traction plant, the population will be increased to such a degree that within five years our population will have trebled or quadrupled. This suggestion is entered here because it is pertinent to have this radical growth in mind in all public building plans.

"It is now contemplated to have the proposed building house a senior high school composed of the sophomore, junior, and senior classes, present enrollment about 400; a junior high school composed of the 7th

grades, the 8th grades, and the freshman classes, present enrollment about 400; and a vocational school with a daily attendance of about 200 including both full-time and part-time pupils.

"From the above data it would seem reasonable to expect that the new building would upon completion be called upon to accommodate 1,000 to 1,200 pupils and should have expansion possibilities to take care of at least 1,500. While additions might be made increasing the capacity to a still greater figure, it is not clear that either efficiency or economy is increased after the above figures are reached, and it might very well be much better in every way to go a considerable distance and begin the duplication of the plant.

"To the end we submit from present enrollment the following facts and figures for each of the departments in our high school. Presuming that the same relative proportions would hold true were the school three times its present size, i. e., 1,500 instead of 500 pupils, we have multiplied the figures for each department by 3, which may give a rough estimate of needed capacity for each department in order to adequately meet the demands made upon it.

"Since a certain amount of extra or laboratory work is required in connection with such subjects as the sciences and agriculture, and other subjects such as domestic sciences, manual training, and commercial work are given double time, we add sufficient time to allow for these and find that at present the high school provides for approximately 2,500 pupil-recitation periods of 40 minutes each, every day; or 312 recitation seatings each period of the present 8-period day. That is, of our present high school enrollment approximately 300 or 3-5 are engaged in class work at any or every period of the school day.

"The state requirements for vocational schools provide that 50% of all instruction should be vocational or prevocational and 50% academic.

"It is well to recall, too, that the fundamental principles underlying the junior high school idea call for a maximum of manual activities and a minimum of academic work for these years.

"Furthermore, it is desirable that full recognition

be made of the demand that the high school program provide for a well-balanced plan of study, work, and play in proper proportions and that all of these activities be provided for in such manner that they may be run concurrently and harmoniously.

"Ample provision to meet the growing demand for physical education for all must be included."

In 1921, the now famous school architect, Mr. Wm. B. Ittner, speaking before the National Association of School Accountants, set forth the following principles which should govern thought in planning a school building:

"The meaning of school building efficiency is maximum return on investment—in service. The greatest factor of all in schoolhouse planing is the skillful adaptation of enriched school facilities to the enriched and expanded modern school life. The ability of the plan to serve the educational program is the most important thing. This requires a combination of architectural ability and educational engineering so that instructional waste space may be eliminated by maximum use and non-instructional waste space reduced to a minimum.

"It is not possible to measure the efficiency of school buildings except in terms of service. Surely then we need some other method far more comprehensive and complete than the standard chart and candle of efficiency to bring out the real and fundamental merits of a school building plan—a method whereby the relative excellence of buildings may be readily recognized.

"Perhaps the principal causes of inadequate and unsuccessful buildings are:

"1. The selection of incompetent schoolhouse planners—architects who have very little knowledge of educational tendencies and consequently are unable to make intelligent surveys of local situations.

"2. The lack of unification of the educational plan and building plan. The *educational program must always be developed first* and serve as the beacon light and constant guide in the development of the building plan.

"3. The lack of sufficient foresight in developing plans for building programs. Altogether too many school communities in the country are limited in educational opportunities because of the patch-work and piece-meal methods of school building in the past. A forecast of from five to ten years is advisable when developing a comprehensive school building program.

"4. Lack of attention to such matters as adequate lighting, ventilation, maximum safety, circulation, conservation of space, and provision for expansion.

"5. Non-instructional waste-space. This is men-

tioned last because if the first four weaknesses are remedied, waste space will automatically disappear. The educational facilities would naturally be the most important factors to measure—whether or not they are adequate, well-proportioned, properly grouped and placed; next, the status of the plan with regard to safety, lighting, and aesthetic fitness, and third, the rating of its elasticity, ease of pupil circulation, and conservation of space.

"Buildings will need to be classified as to type and size, also into elementary and secondary groups. Then an agreement determining the definite standards by which the various component parts of a school building may be analyzed and judged may be necessary. This may be accomplished by a division into ten general classifications.

"1. The adaptability of the plan in meeting educational requirements.

"2. Safety. This should cover such matters as height, corridors, stairways, exits, and construction.

"3. Lighting and ventilation.

"4. Administration and accessory rooms, their area, location and arrangement.

"5. Auditoriums, their size, location, and interior arrangement.

"6. Physical education quarters, their size and grouping, their accessory rooms, and correlation with out-of-door recreational facilities.

"7. Classrooms, their size and distribution.

"8. Laboratory classrooms, their size and grouping.

"9. Pre-vocational and vocational quarters, their variety, size, grouping, and location.

"10. Site and architecture.

"The foregoing constitute the most important items to consider when measuring the efficiency of school buildings. All of them, except perhaps No. 1, are capable of reduction to certain minimum standards to which they must attain to be considered as fulfilling modern school requirements, and the ability with which they measured up to the last nine requirements would determine largely the merit of the plan in meeting requirement No. 1.

"There would be no difficulty then, after definite standards had been agreed upon; to measure the component parts of a given building and determine how closely they measured up to such standards. A certain number of points could be allowed for each classification, 1 to 10. The individual ratings could then be totaled, divided by the number of items, and the final result would represent the efficiency measurement in terms of service and upon the basis of 100 per cent."

Uniformity has its place as a feature of schoolhouse

planning but there is great danger that uniformity may become so cramping and so all-controlling that we shall forget the real purpose for which schoolhouses are built. Here, as in general school administration, the rule of procedure should be: "uniformity in essen-

tials and freedom in details." The point of emphasis in judging schoolhouse plans ought always to be the needs of the school and community first and the rule of architecture second, always including both first and second.

## STATE MEASUREMENTS OF THE PHYSICAL SCHOOL PLANT

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ONE OF THE most helpful as well as satisfying methods of studying the physical plant of the school is found in the examination of the standard plans and score cards in the different state departments of education. Since most state departments of education deal largely with rural and county systems it would be expected that their measuring scales would apply largely to rural schools. Such is the case in the score of the states from which we have been able to obtain material bearing definitely upon the standardization of rural school plants.

An attempt has been made to summarize in a simple way the general requirements of the several states in the form of a sort of norm or score card without, however, assigning values to each item. More than 400 items were listed and from these a sort of minimum standard has been selected. This will serve as a basis from which to work and should be considered only as a rough outline summary of the 15 state requirements examined.

Following this tabulated statement some of the wide range and variations in requirements are examined:

### I. SCHOOLHOUSE

#### 1. General Specifications:

- (a) Good foundation, sidings, roof and floor; well painted exterior or brick in good repair; walls plaster, ceiling tinted in soft colors—buff or green.
- (b) One extra room for closet or store room and a library alcove.
- (c) Porch or veranda covered by roof.
- (d) Good steps—cement preferred.
- (e) Windows with sashes on weights provided with locks.
- (f) Chimney topped, out tile lining with air space between tile and walls of ceiling.
- (g) Fire escapes.

### II. HYGIENE AND EQUIPMENT

#### 1. Hygiene:

- (a) Unilateral lighting, or on left side and rear.
- (b) Windows near to ceiling, glass area 1-5 to 1-6 floor area.
- (c) Light colored shades that roll.
- (d) For each pupil 220 cubic feet air space.
- (e) For each pupil 20 square feet floor space.

- (f) Adequate cloak rooms properly heated and ventilated.
- (g) Study chairs or single patent desks of at least three sizes fastened to strips on the floor.
- (h) Adequate heating and ventilating systems, such as Smith, Waterbury, Old Dominion, or other furnaces which bring in pure air and remove foul air from the room.
- (i) Fly screens for all doors leading into school building and at least two windows.
- (j) Pure water supply; covered water cooler with spigot and individual paper drinking cups or sanitary bubbler with proper plumbing attached.
- (k) Enameled sink with drain pipe, wash basin, mirror, waste basket, paper towels and liquid soap.
- (l) Coal bucket, shovel, floor brush, broom.
- (m) Thermometer.
- (n) First aid outfit.

#### 2. Teaching Equipment:

- (a) A good teacher's desk and at least two chairs.
- (b) At least 25 linear feet of slate blackboard four feet wide and set from 26 to 30 inches from the floor, fitted with sanitary chalk trough.
- (c) Good state map; at least six other good maps in case; suspended globe; weights and measures; good supply of bulletins and educative free materials.
- (d) Textbooks—modern, in good condition, and in quantities to supply the needs of the pupils.
- (e) All schoolbooks for the teacher's use.
- (f) Supply of at least four types of primary material.
- (g) At least two sets of supplementary readers for lower grades or classes—all basal texts.
- (h) Good library; bookcase for each room with books kept in places properly labeled and library rules followed. Bulletin boards provided.
- (i) Newspapers and magazines.
- (j) An encyclopedia; an unabridged dictionary in good condition with stand or shelf.
- (k) Household arts equipment for hot lunches; manual training and agricultural equipment.
- (l) Talking machine with at least ten selected records.
- (m) Musical instrument; community song books.
- (n) National flag.
- (o) Crayon, erasers, and pointers.
- (p) Electric gong desirable. Hand bell or belfry allowable as substitutes.
- (q) Clock.
- (r) Telephone.
- (s) Stereopticon.